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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,739	07/24/2003	Atsushi Sakamoto	01272.020603	8057
5514	7590	01/12/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			MOUTTET, BLAISE L	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/625,739	SAKAMOTO ET AL.	
	Examiner	Art Unit	
	Blaise L Mouttet	2853	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-12 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/22/04</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The IDS filed March 22, 2004 has been considered by the examiner.

### ***Drawings***

3. The drawings are objected to for the following informalities:

In figure 2, controller 200 (as referred to in page 14, line 13 of the specification) is referred to using reference 250, which has also been used for the head driver. It is suggested that the reference for the controller in figure 2 should be changed to 200 in accordance with the specification and to avoid having different parts with the same reference numeral.

In figure 2, ink consumption sensor 222 (as referred to in page 15, line 2 of the specification) is referred to using reference 212. It is suggested that the reference for the sensor in figure 2 should be changed to 222 in accordance with the specification.

In figure 2 and page 15, line 10 of the specification reference 53 is used to refer to a paper feed motor. However reference 53 has already been used to refer to the drive belt in figure 1. It is suggested that figure 2 and the specification should be amended so as to use a different reference number for the paper feed motor.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 6, 8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. US 5,475,404.

Takahashi et al. discloses, regarding claim 1, an inkjet printing apparatus for forming an image using a printing head for ejecting ink and an ink containing section (ink tank) for containing the ink to be supplied to the printing head (column 5, lines 54-57), comprising:

means for discharging the ink (equivalent to the preliminary discharge controller) through an ink ejection opening of said printing head to stabilize ink ejecting characteristics of said printing head (column 6, lines 24-33, the preliminary discharge lowers the viscosity of the ink in the ejection opening of the printhead and thus stabilizes the ejection as explained);

means for detecting the degree of use of the ink (equivalent to the timer 31) in said ink containing section (column 7, lines 24-38, the timer detects the amount of time that the ink in the ink tank is not used);

means for comparing (equivalent to comparing circuit 303) the detected degree of use of the ink with a predetermined value (column 7, lines 33-53); and

control means (equivalent to MPU 301) for changing the amount discharged by said discharging means in accordance with the result of the comparison (as evidenced by TABLE 1 of column 7 and figure 6 the number of times, i.e. amount, of preliminary discharge is changed depending upon the comparison).

Regarding claim 6, the predetermined value (6 hours, 3 days, or 10 days) depends on the time that passes since a predetermined point in time (the power off of the printing apparatus) that comes after the ink is contained in said ink containing section (column 7, lines 24-26).

Regarding claim 8, the discharging means operates by performing preliminary ejections (figure 6, S508-510).

Regarding claim 12, black is one of the inks used (column 13, lines 26-32).

5. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mochizuki et al. US 5,606,353.

Mochizuki et al. discloses, regarding claim 1, an inkjet printing apparatus for forming an image using a printing head for ejecting ink and an ink containing section (ink tank) for containing the ink to be supplied to the printing head (column 1, lines 58-61), comprising:

means for discharging the ink (equivalent to the suction means) through an ink ejection opening of said printing head to stabilize ink ejecting characteristics of said printing head (column 1, lines 64-67, the suction device creates a vacuum in the cap which removes dried ink, bubbles, and dust from the ejection opening of the printhead and thus stabilizes the ejection as explained in the background description);

means for detecting the degree of use of the ink (equivalent to the detection electrodes) in said ink containing section (column 1, lines 61-62, the electrodes

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detecting the amount of use of the ink by detecting amount of remaining ink, i.e. low amount of remaining ink = high degree of use since the ink is almost used up);

means for comparing (equivalent to the resistance value comparison means) the detected degree of use of the ink with a predetermined value (column 2, lines 5-7); and

control means (equivalent to the suction control means) for changing the amount discharged by said discharging means in accordance with the result of the comparison (column 2, lines 7-9, column 9, lines 21-45).

Regarding claim 3, the degree of use is based upon remaining ink (column 1, lines 61-62).

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Murphy US 5,856,834.

Murphy discloses, regarding claim 1, an inkjet printing apparatus for forming an image using a printing head for ejecting ink and an ink containing section (ink cartridge) for containing the ink to be supplied to the printing head (column 2, lines 46-49), comprising:

means for discharging the ink through an ink ejection opening of said printing head to stabilize ink ejecting characteristics of said printing head (equivalent to the flushing or purging means as explained in column 3, lines 50-63);

means for detecting the degree of use of the ink (equivalent to the device for determining ink consumption) in said ink containing section (column 2, lines 49-50);

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means for comparing the detected degree of use of the ink with a predetermined value (equivalent to the ascertaining device of column 2, lines 51-52); and

control means for changing the amount discharged by said discharging means in accordance with the result of the comparison (equivalent to the controller of column 2, lines 53-62).

Regarding claim 2, the degree of use is based upon ink consumption (column 2, lines 49-50).

7. Claims 1-3 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Inui et al. US 6,702,421 B2.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Inui et al. discloses, regarding claim 1, an inkjet printing apparatus for forming an image using a printing head for ejecting ink and an ink containing section (ink tank) for containing the ink to be supplied to the printing head (column 3, lines 60-65), comprising:



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means for discharging the ink (equivalent to the recovery means) through an ink ejection opening of said printing head to stabilize ink ejecting characteristics of said printing head (column 3, lines 65-67);

means for detecting the degree of use of the ink (equivalent to the residual ink volume detecting means) in said ink containing section (column 4, lines 1-2);

means for comparing the detected degree of use of the ink with a predetermined value (this aspect is encompassed by the claimed "less than or equal to" comparison of the discharge ink volume control means as specified in column 4, lines 2-6); and

control means (equivalent to the discharge ink volume control means) for changing the amount discharged by said discharging means in accordance with the result of the comparison (column 4, lines 2-6).

Regarding claim 2, the detecting means detects the degree of use based on ink consumption ("ink volume flowing out") (column 4, lines 25-30).

Regarding claim 3, the detecting means detects the degree of use based on the amount of ink remaining ("residual ink volume") (column 4, lines 2-6).

Regarding claim 12, black ink is included as the printing ink (column 6, lines 47-54).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. US 5,475,404 in view of Numata et al. US 5,625,384.

Takahashi et al. discloses the subject matter of claim 6 as described in the 35 USC 102 rejection above.

Takahashi et al. fails to disclose that the predetermined value depends on a time that passes since a date of manufacture of the ink containing portion.

Numata et al. is relevant for teaching that a pre-discharge operation in an inkjet printing apparatus, such as that of Takahashi et al., is advantageously performed dependent upon a time that passes since a date of manufacture of an ink containing portion (column 39, line 60 – column 40, line 6).

It would have been obvious to a person of ordinary skill in the inkjet art at the time of the invention to use a time that passes since a date of manufacture of the ink

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containing portion, as taught by Numata et al., as the predetermined point for the predetermined value in the apparatus of Takahashi et al.

The motivation for doing so would have been to properly perform preliminary ejection at first use after manufacturing as indicated by column 40, lines 1-6 of Numata et al.

9. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al. US 5,475,404 in view of Lund et al. US 5,659,342.

Takahashi et al. discloses the subject matter of claim 8 as described in the 35 USC 102 rejection above.

Takahashi et al. discloses, regarding claims 9 and 10, that the control means changes the number of preliminary ejections or time intervals (i.e. frequency) of the preliminary discharge to change the amount of ink discharged (column 3, lines 60-63, column 4, lines 23-32).

Takahashi et al. fails to disclose, regarding claims 9 and 10, that the preliminary discharge is performed during the formation of the image.

Takahashi et al. fails to disclose, regarding claim 11, that pigment ink is used.

Lund et al. is pertinent to discharge stabilization of inkjet printheads and discloses that performing preliminary discharge at a cleaning station wastes printing time (column 1, line 56 – column 2, line 3). Lund et al. teaches performing the preliminary ejection integrally with the image formation to avoid this waste of time (abstract).

It would have been obvious to a person of ordinary skill in the inkjet art at the time of the invention to include the preliminary ejection of Takahashi et al. as part of the image formation as taught by Lund et al.

The motivation for doing so would have been to avoid the wasted printing time as taught by column 1, line 56 – column 2, line 3 of Lund et al.

Lund et al. teaches that pigment based ink is common to the inkjet art providing advantages of improved black and color inks (column 1, lines 35-39).

It would have been obvious for a person of ordinary skill in the inkjet art at the time of the invention to use pigment inks in the apparatus of Takahashi et al. as taught by Lund et al.

The motivation for doing so would have been to produce improved black and color inks as taught by column 1, lines 35-39 of Lund et al.

### ***Double Patenting***

10. Claims 1-3 are directed to the same invention as that of claims 1 and 6 of commonly assigned U.S. Patent No. 6,702,421. The issue of priority under 35 U.S.C. 102(g) and possibly 35 U.S.C. 102(f) of this single invention must be resolved.

Since the U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302), the assignee is required to state which entity is the prior inventor of the conflicting subject matter. A terminal disclaimer has no effect in this situation since

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the basis for refusing more than one patent is priority of invention under 35

U.S.C. 102(f) or (g) and not an extension of monopoly.

Failure to comply with this requirement will result in a holding of abandonment of this application.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 6 of U.S. Patent No. 6,702,421. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Regarding claim 1 of the present application, claim 1 of the '421 patent calls for an inkjet printing apparatus for forming an image using a printing head for ejecting ink and an ink containing section (ink tank) for containing the ink to be supplied to the printing head (reworded but substantially the same as the preamble of claim 1 of the '421 patent), comprising:

means for discharging the ink through an ink ejection opening of said printing head to stabilize ink ejecting characteristics of said printing head (reworded but substantially equivalent to the claimed recovery means of claim 1 of the '421 patent);

means for detecting the degree of use of the ink in said ink containing section (reworded but substantially equivalent to the claimed residual ink volume detecting means of claim 1 of the '421 patent);

means for comparing the detected degree of use of the ink with a predetermined value (this aspect is encompassed by the claimed "less than or equal to" comparison of the discharge ink volume control means of the '421 patent); and

control means for changing the amount discharged by said discharging means in accordance with the result of the comparison (substantially equivalent to the claimed discharge ink volume control means of claim 1 of the '421 patent).

Regarding claim 2 of the present application, the detecting means detects the degree of use based on ink consumption ("ink volume flowing out") as specified in claim 6 of the '421 patent.

Regarding claim 3 of the present application, the detecting means detects the degree of use based on the amount of ink remaining ("residual ink volume") as specified in claim 1 of the '421 patent.

The primary difference between the claimed subject matter in claims 1 and 6 of the '421 patent and claims 1-3 of the present application is the specification that the amount is changed in terms of ink volume and that the degree of use is a measure of residual ink volume.

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Since claims 1-3 of the current application claims these features **more broadly** one of ordinary skill in the inkjet art would conclude that the invention defined in the claims at issue is an obvious variation of the claims 1 and 6 of the '421 patent.

### ***Additional Prior Art***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee US 5,805,182 discloses a method for cleaning nozzles in an inkjet printhead based on the frequency of use of the nozzles.

Kanda et al. US 6,382,765 discloses comparing printing pulses associated with respective ink colors with reference values when an image is formed (figure 8, S809, S811, S813, S815) to determine whether a preliminary ejection is to be performed for the respective colors.

### ***Allowable Subject Matter***

13. Claims 4 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The means for judging and the operation of the detecting means on the basis of the judgment, as recited in claims 4 and 5 in combination with the limitations of claim 1, is not shown or rendered obvious by the art of record.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet who may be reached at telephone number (571) 272-2150. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, Art Unit 2853, can be reached at (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet January 7, 2005

*Blaise Mouttet* 01/07/2005